WHAT IS CLAIMED IS:

1. A method for detecting an altered metabolism of a substrate of a flavin-containing monooxygenase (FMO) enzyme or an isoform thereof in a patient, the method comprising detecting at least one of a mutation and a polymorphic variant of a gene encoding said FMO enzyme in a sample from said patient, whereby said at least one of said mutation and said polymorphic variant is indicative of an altered metabolism for said substrate.

2. A method for detecting a susceptibility of a patient to a substrate of a flavin-containing monooxygenase (FMO) enzyme or an isoform thereof in an patient, the method comprising detecting at least one of a mutation and a polymorphic variant of a gene encoding said FMO enzyme in a sample from said patient, whereby said at least one of said mutation and said polymorphic variant is indicative of a susceptiblity to said substrate.

3. A method for detecting a predisposition of a patient to a disorder associated with an (adverse) exposure to a heteroatom-containing chemical compound, an intermediate or a metabolite thereof associated with carcinogenesis or having a toxic, pro-carcinogenic or carcinogenic potential, said method comprising detecting at least one of a polymorphic variant and a mutation of a gene encoding a flavin-containing monooxygenase (FMO) enzyme or an isoform thereof in a sample from said patient, whereby said at least one said polymorphic variant and said mutation

is indicative of exposure to the chemical compound, the intermediate or the metabolite thereof.

4. A method for detecting a predisposition to hypertension in a patient, said method comprising detecting at least one of a mutation and a polymorphic variant of a gene encoding said FMO enzyme in a sample from said patient, whereby said at least one of said mutation and said polymorphic variant is indicative of a predisposition to hypertension.

5. A method according to anyone of claims 1 to 4, wherein said at least one of said mutation and said polymorphic variant inactivates partially or totally the activity of said FMO enzyme.

6. A method according to claim 5, wherein said FMO enzyme consists of isoform 3 (FMO3).

7. A method according to claim 6, wherein the polymorphic variant comprises a polymorphic variant from the group consisting of E158K, V257M and E308G, and the mutation comprises a mutation from the group consisting of P153L, E305X, M66I, E314X, R492W, A52T and R387L.

8. A method according to claim 7, wherein the altered metabolism is associated with an idiosyncratic reaction to the substrate.

9. A method according to claim 8, wherein the altered metabolism is associated with a disorder.

10. A method according to claim 9, wherein the disorder is a cancer.

11. A method according to claim 7, wherein the substrate is a xenobiotic or an endogenous material relative to said individual.

12. A method according to claim 11, wherein said xenobiotic is a drug, a food additive, a pesticide, a plant toxin, an organic chemical compound or an aromatic amine.

13. A method according to claim 12, wherein the substrate is a biogenic amine contained in diet of said individual.

14. A method according to claim 13, wherein said biogenic amine is a tertiary amine.

15. A method according to claim 14, wherein said tertiary amine is trimethylamine (TMA), tyramine or catecholamine.

16. A method according to claim 14, wherein the tertiary amine is trimethylamine (TMA) and wherein the disorder is trimethylaminuria (TMAuria).

17. A method for the treatment of an individual having a disorder associated with an altered activity of a flavin-containing monooxygenase FMO enzyme or an isoform thereof, the method comprising supplementing the individual with riboflavin to increase the altered activity of the FMO enzyme or isoform thereof.

18. A method according to claim 17, wherein the isoform consists of isoform 3 (FMO3).